

of Molecular Biology at Cambridge (he did his post-doctoral work with Watson) and I am sure Crick would have delighted in reading it.

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#### ON LIFE: CELLS, GENES, AND THE EVOLUTION OF COMPLEXITY.

By Franklin M. Harold. Oxford and New York: Oxford University Press. \$29.95. xvii + 201 p.; ill.; index. ISBN: 978-0-19-760454-0. 2022.

In this volume, the author explores biology through its two unique and universal features: its universal process—evolution—and its universal form—the cell. By focusing the book on cells that evolve, Harold can start at the beginning of the story. Life as we know it started with evolving cells about four billion years ago. From this starting point, the author describes how, through mutation, selection, drift, and time (a whole lot of time), life has become what we know it to be today, full of complex fungi, plants, and thinking animals. Life's journey happened only once and, like human history, is riddled with names and nouns, dates and numbers. Harold effectively introduces the problematic nouns of biology (including many from cell biology, biochemistry, and genetics) without losing sight of his narrative. His self-stated goal for the volume is simply to make biology intelligible. This is a lofty goal given the state of communication between scientists and the general public—one that is necessary—but is it achievable?

The great success of this book is that it brings together evolution and cell biology into a popular science format. Few volumes, if any, have done so. Normally, popular science and textbooks tend to focus on one side of the cell or evolutionary divide. Here, the author dives into both the detailed and nuanced nature of cell and molecular biology while also exploring the expanse of evolutionary biology and diversity. Starting with cells and biochemistry and then working through evolutionary theory and diversity, Harold touches on nearly every biological subject providing a resource for any novice reader. Thus, he gives general readers an opportunity to sink their teeth into the edge of biological knowledge, writing with enthusiasm and wonder instead of power and authority. The author repeats himself just enough to remind novice readers about topics previously covered, but not so much that an expert is bogged down. He firmly states what we think we know, how we know it, and how much wiggle room there is for doubt. He even almost leaves room for the supernatural. The figures are simple but largely

accurate; even the phylogenies are more accurate than those shown in many textbooks.

Problematically, biology is as complicated as it is wonderful. Although Harold has done perhaps the best possible job of making cells and evolution intelligible for undergraduates somewhat familiar with biology, general readers will struggle at times. Therefore, this volume is best read by biology students and advanced general readers who are well acquainted with biology. Novice readers without this foundation may not follow Harold's innovative evolutionary cell biological approach to understanding life and its complexity.

So, does the author succeed in making biology intelligible? With a bit of help—yes. Overall, *On Life* fills an open niche in the popular science literature. It strongly contributes to biology education and communication, especially in the context of its approach to explaining the evolution of complexity. Although general readers who have never heard of mitochondria or metazoans, plastids or the Precambrian may have trouble following along, with a bit of help, perhaps this is exactly the book they desire. We therefore firmly advocate using Harold's volume as a supplementary text for nonmajor biology courses or in public book clubs led by professional biologists. By uniting biology's two universals, the author brings together disparate biological sciences in ways few readers recognize as possible. Instead of learning about cells in isolation from evolution, readers can begin to see the unity of the biological sciences. As we digest this volume as professional biologists, we think to the future: How do we make biology—with all of its nouns and nuance—more intelligible?

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#### CONSERVATION BIOLOGY

#### PLASTIC POLLUTION AND MARINE CONSERVATION: APPROACHES TO PROTECT BIODIVERSITY AND MARINE LIFE.

Edited by Giuseppe Bonanno and Martina Orlando-Bonaca. Academic Press, Amsterdam (The Netherlands) and New York: Elsevier. \$140.25 (paper). xiii + 331 p.; ill.; index. ISBN: 978-0-12-822471-7. 2022.

The title of this book implies a general volume that discusses plastic pollution and marine conservation—yet the content includes eight chapters of rather disjointed focus and Chapter 7 on marine protected areas, what one could reasonably expect to be a major focus, is covered in a mere 13 pages. The authorship